

Claims:

1. Use of a compound of general Formula 1 as a slip agent in a polyester polymer:

5

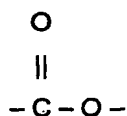


wherein: R and R¹ represent hydrocarbon moieties, each hydrocarbon moiety comprising 1 to 34 carbon atoms and wherein R and/or R¹ may be linear, branched chain, saturated or contain one or more double bonds and wherein; and wherein

10

X represents:

15



20

2. Use of a compound of general Formula 1 as a slip agent in a PET polymer as claimed in Claim 1 wherein the total number of carbon atoms in R, R¹ and X is greater than 16 and more preferably greater than 22.

25

3. Use of a composition of general Formula 1 as a slip agent as claimed in Claim 1 or Claim 2 wherein the total number of carbon atoms in R, R¹ and X is greater than 35.

4. Use of a composition of general Formula 1 as a slip agent in a polymer as claimed in any preceding claim wherein the total number of carbon atoms in R, R¹ and X is between 36 and 44.

30

5. Use of a composition of general Formula 1 as a slip agent in a PET polymer as claimed in any preceding claim wherein the composition of general Formula 1 is selected from the group comprising stearyl stearate, stearyl behenate and behenyl behenate, ethylene glycol distearate, ethyl behenate, behenyl acetate, palmityl myristate, palmityl palmate or mixtures thereof. This group of compounds provides slip values in the order of 40% or better at the test concentrations when compared to

35

the blank. Such values are particularly high and represent a significant improvement on currently used additives in this context.

6. Use of a composition of general Formula 1 as a slip agent in a polyester polymer as claimed in Claim 6 wherein the PET polymer is selected from the group comprising:-

- poly(butylenes terephthalate)
poly(cyclohexanedimethylene terephthalate)
10 poly(ethylene isophthalate)
poly(ethylene 2,6-naphthalenedicarboxylate)
poly(ethylene phthalate)
poly(ethylene terephthalate)
and co-polymers thereof.

15

7. Use of a composition of general Formula 1 as a slip agent in a PET polymer according to any preceding claim wherein said composition of general Formula 1 is present in said PET polymer in an amount of between 0.1% to 1.0% wt/wt.

- 20 8. Use of a composition of general Formula 1 as a slip agent in a PET polymer according to Claim 7 wherein said composition is present in said PET polymer in an amount of between 0.2% to 0.75% wt/wt.

9. Use of a composition of general Formula 1 as a slip agent in a PET polymer
25 substantially as herein described.

10. A polyester polymer incorporating one or more slip agents of general Formula 1:

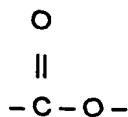


wherein: R and R¹ represent hydrocarbon moieties, each hydrocarbon moiety comprising 1 to 34 carbon atoms and wherein R and/or R¹ may be linear, branched chain, saturated or contain one or more double bonds; and wherein

35

X represents:

23



5

11. A polymer as claimed in Claim 10 incorporating one or more slip agents of general Formula 1 wherein the total number of carbon atoms in R, R¹ and X is greater than 16 and more preferably greater than 22.

10 12. A polymer as claimed in Claim 10 or Claim 11 wherein the total number of carbon atoms in R, R¹ and X is greater than 35.

13. A polymer as claimed in any of Claims 10, 11 or 12 wherein the total number of carbon atoms in R, R¹ and X is between 23 and 44.

15

14. A polymer as claimed in any of claims 10, 11, 12 or 13 incorporating one or more slip agents of general Formula 1 wherein the composition is selected from the group comprising stearyl stearate, stearyl behenate, behenyl behenate, ethylene glycol distearate, ethyl behenate, behenyl acetate, palmityl myristate, palmityl palmate or mixtures thereof.

20

15. A polymer as claimed in any of Claims 10 to 14 inclusive wherein said polymer is selected from a group comprising:-

25 poly(butylenes terephthalate)
poly(cyclohexanedimethylene terephthalate)
poly(ethylene isophthalate)
poly(ethylene 2,6-naphthalenedicarboxylate)
poly(ethylene phthalate)
30 poly(ethylene terephthalate)
or co-polymer thereof.

16. A polymer as claimed in any of Claims 10 to 15 inclusive incorporating one or more slip agents of general Formula 1 wherein said slip agent(s) are present in said polymer in an amount of between 0.1% to 1.0% wt/wt.

35

17. A polymer as claimed in Claim 16 wherein said slip agent(s) are present in said polymer in an amount of between 0.2% to 0.75% wt/wt.
18. A polymer incorporating one or more slip agents of general Formula 1 substantially as herein described.
19. A method of treating a polyester polymer to increase the slip of said polymer said method comprising incorporating into said polymer a composition of general Formula 1 as defined in any of Claims 1 to 9 inclusive..
20. A method of treating a polymer as claimed in Claim 19 wherein said polymer is selected from a group comprising:-
- poly(butylenes terephthalate)
 - poly(cyclohexanedimethylene terephthalate)
 - poly(ethylene isophthalate)
 - poly(ethylene 2,6-naphthalenedicarboxylate)
 - poly(ethylene phthalate)
 - poly(ethylene terephthalate)
 - or co-polymer thereof.
21. A method according to Claim 20 wherein said composition of general Formula 1 is present in said polymer in an amount of between 0.1% to 1.0% wt/wt.
22. A method according to Claim 21 wherein said composition of general Formula 1 is present in said polymer in an amount of between 0.2% to 0.75% wt/wt.
23. A container made from a polymer as claimed in any of Claims 10 to 18 inclusive.
24. A container as claimed in Claim 23 wherein said container is formed from a polymer selected from a group comprising:-
- poly(butylenes terephthalate)
 - poly(cyclohexanedimethylene terephthalate)
 - poly(ethylene isophthalate)

25

poly(ethylene 2,6-naphthalenedicarboxylate)
poly(ethylene phthalate)
poly(ethylene terephthalate)
or co-polymer thereof.

5

25. A film made from a polymer as claimed in any of Claims 10 to 18 inclusive.

26. A film as claimed in Claim 25 wherein said film is formed from a polymer selected from a group comprising:-

10

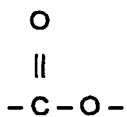
poly(butylenes terephthalate)
poly(cyclohexanedimethylene terephthalate)
poly(ethylene isophthalate)
poly(ethylene 2,6-naphthalenedicarboxylate)

15

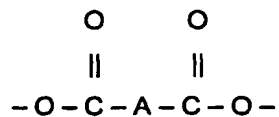
poly(ethylene phthalate)
poly(ethylene terephthalate)
or co-polymer thereof.

27. A composition comprising a copolymer of a polyester and a compound of
20 general Formula 1 wherein: R and R¹ represent hydrocarbon moieties, each hydrocarbon moiety comprising 1 to 34 carbon atoms and R and/or R¹ may be linear, branched chain, saturated or contain one or more double bonds; and wherein X represents one of the moieties:

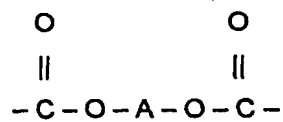
26



5



10



wherein A represents a hydrocarbon moiety comprising 2 to 36 carbon atoms and
 15 may be linear, branched chain, saturated or contain one or more double bonds.

BEST AVAILABLE COPY